Preface (Gratitude & Appreciation)

The historic Khazana Bawadi of Beed stands as a remarkable testimony to the extraordinary wisdom, scientific vision and artistic mastery of ancient Indian architecture. This magnificent structure is not merely a water system, but a silent chronicle of advanced knowledge in geometry, astronomy, hydrology and Vastu principles, preserved in stone for centuries.

The Khajana Well stands as an enduring symbol of India's advanced architectural, scientific, and water management heritage. This exceptional structure, attributed to the master ***Sthapati Raja Bhaskar***, reflects the highest standards of engineering, spatial geometry, hydrological intelligence, and traditional knowledge systems prevalent during the period of its construction.

The Government acknowledges with deep respect and appreciation the extraordinary vision, skill, and technical excellence of ***Sthapati Raja Bhaskar***, whose work demonstrates a remarkable understanding of groundwater science, structural stability, climate responsiveness, and sustainable water conservation. The design of this well is not merely a water structure but a sophisticated scientific and cultural asset that has served generations over centuries.

This report is presented as a tribute to the invaluable contribution of ***Sthapati Raja Bhaskar*** and his ***skilled worker team***, whose mastery in architecture and hydro-engineering has provided lasting benefit to society and stands as a proud testament to the intellectual and technical capabilities of ancient Indian civilization.

The documentation of this heritage structure has been undertaken with a sense of national responsibility, academic sincerity, and institutional respect. This Preface is placed on record to ensure that due recognition is accorded to the visionary creator and to encourage conservation, protection, and further scientific study of this historically significant monument.

Ar. Samrat R. Sarode

Khajana Well (Treasure Well), Beed District, Maharashtra

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Date of Survey: 10/08/ 2024 to 19/11/2025

Location of Structure: Beed (Maharashtra) 431122

GPS Coordinates: Lat: 18.95 N, long: 75.75 E

Abstract

This research report presents a comprehensive analytical study of the historic water structure known as **Khajana Well**, located in Beed district, Maharashtra. The investigation examines the monument through multidisciplinary lenses including **architectural morphology, archaeo-astronomical alignment, Vāstu-śāstra principles, hydro-technical engineering, and symbolic–cultural interpretation**. Detailed field documentation, dimensional analysis, orientation studies, and material observations were conducted during site visits, supported by comparative evaluation with medieval Deccan stepwell and subterranean water architecture traditions.

The study explores the geometric planning logic, spatial hierarchy, load-distribution systems, and stone construction techniques that indicate a high level of engineering precision. Astronomical assessment considers axial alignments, light–shadow interactions, and seasonal solar incidence to understand potential cosmological intent embedded in the design. Vaastu analysis evaluates directional energy zoning, elemental balance (Panchamahabhuta correlation), and sacred geometry principles reflected in the layout.

Hydrological examination focuses on groundwater recharge mechanisms, percolation behaviour, thermal regulation, and sustainable water management strategies inherent in the structure's design, demonstrating its role as a climate-responsive water system rather than merely a utilitarian well. Symbolically, the structure is interpreted as a subterranean cosmogram representing descent into the womb of the earth (Bhugarbha symbolism), linking water, fertility, and sacred spatial experience.

The findings position Khajana Well as an integrated example of **science, spirituality, and environmental engineering** in medieval Indian architecture, underscoring the need for conservation, scholarly recognition, and inclusion within the broader discourse of heritage hydro-architecture.

Keywords

Khajana Well; Beed heritage; stepwell architecture; subterranean water structures; hydro-technical engineering; Vāstu-śāstra; sacred geometry; archaeo-astronomy; solar alignment; medieval Deccan architecture; groundwater recharge systems; climate-responsive design; symbolic architecture; Indian water heritage; architectural conservation.

Introduction

The **Khajana Well** is believed to be an underground step structure completed around the late medieval period, traditionally associated with Ar. Raja Bhaskar in the governance period of Salabat Khan (1572 AD). Architectural findings in my research suggest that this structure was not only a water resource but also served as a **"Treasure of knowledge"** or Local language called as " **Bir ka khajana**". My research was initiated with the objective of understanding the deeper scientific, astronomical, and symbolic dimensions of this structure rather than limiting it only to its physical description.

Objectives of the Research

The primary objectives of this research were:

1. To document the architectural configuration of Khajana Well.
2. To analyse its geometric and helical structural system.
3. To study the tunnel networks and their directional alignments.
4. To investigate its relationship with **Vaastu principles and Aayaadi calculations.**
5. To assess astronomical correlations including stellar alignment patterns.

Methodology Adopted

The research was conducted using the following methods:

- On-site physical survey and manual measurements.
- Visual documentation through sketches and photographs.
- Directional mapping using compass-based orientation.
- Comparative study with similar historic step wells and underground structures.
- Review of internet data of Khajana well, oral traditions, and folk.
- Analytical mapping of tunnel networks through geometric projections and google earth.

Key Architectural Observations

Step Architecture: The well features a descending staircase system. There is 15 steps to go down which has symbolic and functional importance,

Fig 1: 15 steps denote for the 15 phases of Moon from amavasya to pornimaa.

Three Tunnel System

One of the most unique features of Khajana Well is the presence of three tunnels:

- One tunnel accurately aligned with True North direction.
- Two lateral tunnels with specific angular offsets toward SE & SW direction.

When these tunnel directions are joined graphically, they form geometric patterns resembling **Exponent mark** and **summer triangle stars diagrams**.

Fig 2. Tunnels in well

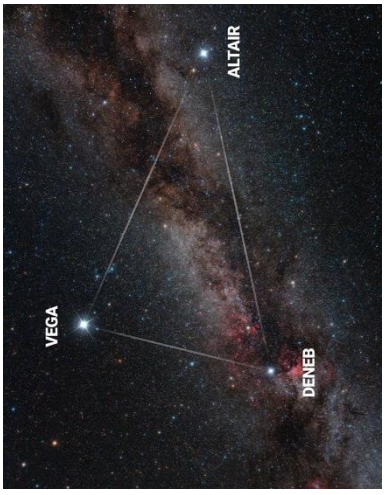

Fig 3. The summer triangle

Astronomical and Directional Research Findings

Based on my field observations, the tunnel and stair alignments show directional relationships with key stellar bodies, especially stars of the Summer Triangle, namely:

- Vega **(Abhijit Tara)** This star is considered a symbol of brilliance, success and excellence.

- Altair **(Shravan Tara)** In the sky, this star resembles a flying eagle with its wings spread, so it is considered a symbol of speed and energy.
- Deneb **(Hans Tara)** The swan star is considered a symbol of knowledge, purity, spiritual upliftment, and spiritual power.

Directional correlation was mapped with respect to seasonal sky positions, indicating possible use of the structure as a stellar timekeeping and navigation reference system by ancient builders.

Vaastu and Aayaadi Based Observations

Through Aayaadi calculations and Vaastu analysis, I observed that:

- The dimensions of the inner circular well follow Aayaadi calculations systems aligned with traditional Vaastu cosmology.
- Certain directional points align with energy nodes described in classical Indian architectural texts.

Symbolic and Linguistic Interpretation

My research also explored the semantic origin of the name *Khajana*:

- In Urdu, **“Bir”** can be interpreted in context as a reference to intellect or brain.
- "Bir ka Khajana" can be symbolically interpreted as ***Treasure of Knowledge.***
- The Sanskrit equivalent concept aligns with “Gyan Vaapi” (Well of Knowledge).

These interpretations suggest that the well may have served as a knowledge repository rather than a mere water structure.

Scientific Hypothesis

Based on structural geometry, tunnel layout, directional mapping, and symbolic evidence, my research proposes that:

The Khajana Well was designed as a multi-functional ancient knowledge system integrating water harvesting, astronomical observation, directional navigation, and symbolic knowledge preservation.

The exponential geometric patterns observed through tunnel mapping suggest intentional design rather than accidental construction.

Need for Government Documentation & Protection

Considering the historical, scientific, and cultural importance of this structure, I humbly recommend:

- Official archaeological survey of Khajana Well.
- Detailed 3D scanning and structural health assessment.
- Immediate heritage protection status under state/central acts.
- Controlled research permission for scientific institute

Khajana Well – Measurement

Inner Circular Well Measurements

Parameter	Value (Measured)	Unit
Inner Diameter	12. 547	mtr
Total Depth	2.286	mtr
Circumference	39.430	mtr
Step Width	1.219	mtr
Step Height	0.40	mtr

Fig 4. Inner diameter of well

Outer Circular Well Measurements

Parameter	Value (Measured)	Unit
Outer Diameter	19.0	mtr
Total Depth	6.705	mtr
Circumference	59.690	mtr
Step Width	1.219	mtr
Step Height	0.40	mtr

Fig 5. Outer diameter of well

Tunnel Survey Data

Tunnel No.	Direction (Azimuth)	Length (Approx.)	Width	Height
Tunnel 1	North	4.5 Km	2’ 9”	5’ 6”
Tunnel 2	Southeast	Nil	2’ 8”	5’ 6”
Tunnel 3	Southwest	Nil	2’ 8”	5’ 6”

Measurement units used in ancient period in india and worldwide

Kishku Angula = 1” 3/8

Kishku Hasta = 33”

Kishku Danda = 11’

Rajju = 88’ (kamika agama shastra)

Circumference of inner well **: Aayaadi no 1129 kishku angula**.

Method: 1129 x 1” 3/8 = 129’ 4” 3/8 → (39.430 m)

Parameter	Reminder Value	Result	Meaning / Effect
Aaya	8	Healthy energy	Auspicious
Vyaya	1	Unhealthy energy	Auspicious
Yoni	3	South	**Entrance from South**
Amsa	7	Nirbheeti	Auspicious
Vara	4	Wednesday	Auspicious
Nakshatra	14	Chitra	Rakshasa Gana

Diameter of inner well **: Aayaadi no 359 kishku angula**.

Method: 359 x 1” 3/8 = 41’ 2” → (12.547 m)

Aayaadi Results of Aayaadi no 359

Parameter	Calculated Value	Reference Text	Meaning / Effect
Aaya	4	Healthy energy	Auspicious
Vyaya	1	Unhealthy energy	Auspicious
Yoni	3	West	Entrance from East
Amsa	5	King	Auspicious
Vara	4	Wednesday	Auspicious
Nakshatra	10	Magha	Rakshasa Gana

Fig 6 . Circular Manduka Vaastu purusha

Manduka Vaastu purusha mandala

Each part of division is 4’ 0” $^{1/2}$” in length, the entrance of the well is 8’ 1” Wide. Means 2 parts are used for entrance.

The **diameter of the inner circle** in the Bawadi is 41 feet 2 inches (12.547 meters). Converting 12.547 into kilometres ($12.547 \times 10^3 = 12{,}547$ Km) in symbolic calculations gives 12,547 km, which is very close to the modern value of diameter of the Earth.

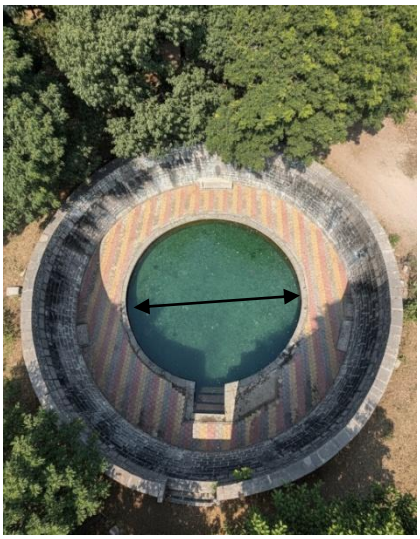

Fig 7. Diameter of inner well

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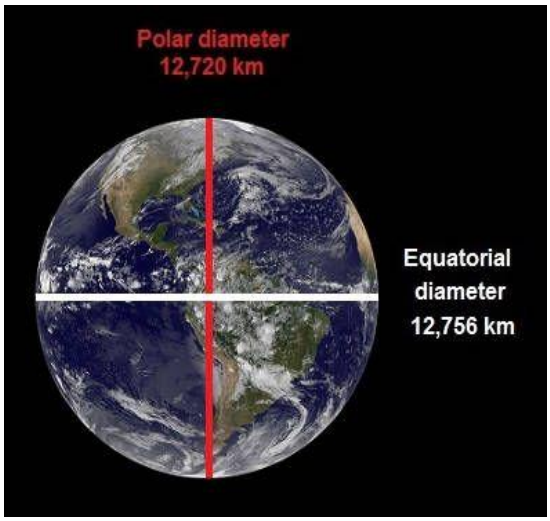

Fig 8. Diameter of earth

Similarly, the **circumference of the inner circle** is 39.419 meters, and its symbolic kilometre conversion ($39.419 \times 10^3 = 39{,}419$ Km) which is very close to the modern value of equatorial circumference of the Earth.

Fig 9. **circumference of the inner circle** = **Fig 9. circumference of Earth**

Why 359 Angula Diameter is taken ?

The numbers 359 are considered Auspicious numbers in the Aayaadi calculation.

359 is symbolically linked to the calculation of the Earth's axial rotation. The imaginary longitudes 0 to 359 are shown on the Earth. There are actually 359 lines in a 360-degree compass. **The Earth rotates at a speed of 15 degrees per hour.**

In 24 hours ($24 \text{ hours} \times 15^0 = 360^0$). That is, 359 angula of inner diameters are taken to show how many degrees the Earth rotates on its axis in 24 hrs.

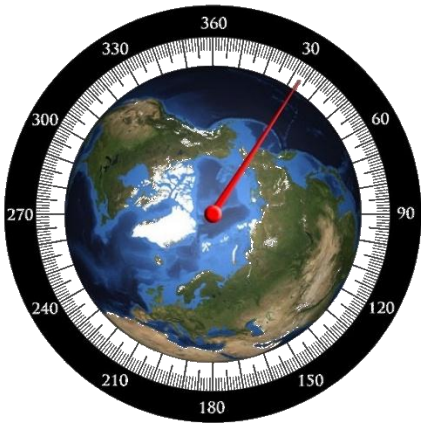

Fig 10. 360^0 of Earth

15 steps — 15 steps have been placed to descend into the well, these 15 steps represent the various 15 phases of the moon between new moon (Amavasya) and full moon (Poornima).

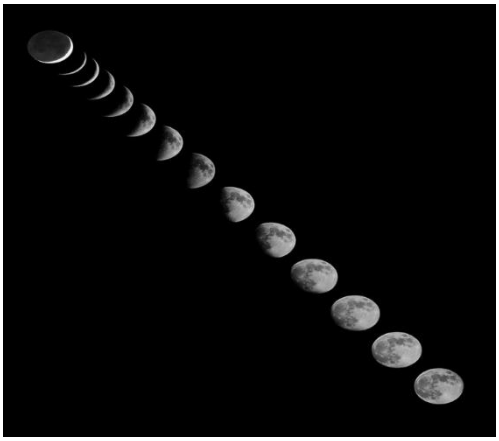

Fig 11. Steps Amavasya to Poornima (15 days)

Outer Circle—An indication of the Earth-Moon distance.

The length of the Outer Well circumference is 59.81 meters. After taking the square of this number ($59.81^2 = 3577.23$) and taking this value as running length, converting to kilometre, the symbolic calculation gives a figure of 3,57,723 km. The modern scientific measurement of the distance between the Moon and the Earth, (the 'perigee') also remains around same. Should these be considered mere coincidences, or was astronomy deliberately used in ancient architecture?

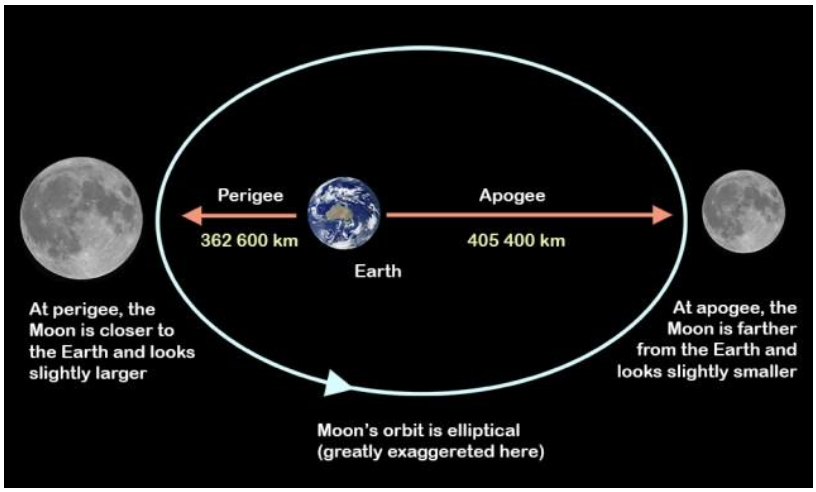

Fig 12. indications of the Earth-Moon distance

Conclusion

The research shows that the “Bir ka Khajana” (Khajana Bawadi) is not just a well but an ancient document of Vaastu shastra, geography, astronomy and knowledge of water systems. The conservation of this Bawdi means the preservation of the city’s history, the heritage of generations and the scientific approach.

References :

1. Michell, George. The Hindu Temple: An Introduction to Its Meaning and Forms. University of Chicago Press, 1988, pp. **45–67**, **103–112**.
   (Spatial hierarchy, sacred geometry, and architectural symbolism.)
2. Hardy, Adam. The Temple Architecture of India. Wiley, 2007, pp. **78–96**, **152–158**.
   (Geometric planning and structural systems.)
3. Mehta, J. M. Indian Vāstu Śāstra. D.K. Printworld, New Delhi, 1998, pp. **23–31**, **105–118**.
   (Directional principles, Vāstu grids, and elemental analysis.)
4. Acharya, P. K. Architecture of Mānasāra. Oxford University Press, 1934, pp. **12–26**, **87–95**.
   (Canonical measurements and planning logic relevant to water structures.)
5. Kramrisch, Stella. The Hindu Temple, Vol. I & II. Motilal Banarsidass, 1946, Vol. I pp. **211–229**; Vol. II pp. **45–59**.
   (Cosmological symbolism and sacred spatial traditions.)
6. Livingston, Morna & Beach, Milo. Steps to Water: The Ancient Stepwells of India. Princeton Architectural Press, 2002, pp. **33–54**, **99–124**.
   (Comparative stepwell design and water-harvesting strategies.)
7. Jain-Neubauer, Jutta. The Stepwells of Gujarat: In Art-Historical Perspective. Abhinav Publications, 1981, pp. **14–36**, **67–83**.
   (Typologies and architectural detailing.)
8. Agarwal, Anil & Narain, Sunita. Dying Wisdom: Rise, Fall and Potential of India’s Traditional Water Harvesting Systems. Centre for Science and Environment, New Delhi, 1997, pp. **7–26**, **41–60**.
   (Hydrological context and sustainability.)
9. Archaeological Survey of India. Indian Archaeology – A Review (Annual Report). Various issues, 2015–2023, pp. **101–112**, **215–228**.
   (Documentation standards and regional finds.)
10. Kulkarni, A. R. Maharashtra in the Age of Shivaji. Deshmukh & Co., Pune, 1969, pp. **12–30**, **86–97**.
    (Historical and political context of Deccan architectural traditions.)

11. Pathak, Arunchandra S. Water Management in Ancient India. Aryan Books International, 1998, pp. **51–74**, **99–110**.
(Hydro-technical systems and traditional recharge techniques.)

12. Rao, S. Balakrishna. "Archeoastronomy in Indian Temple Architecture." Indian Journal of History of Science, vol. 40, no. 3, 2005, pp. **233–245**.
(Methodology for alignment and astronomical intent in monuments.)

13. Brown, Percy. Indian Architecture (Buddhist and Hindu Periods). D.B. Taraporevala Sons, 1959, pp. **73–89**, **142–156**.
(Architectural history foundations.)

14. **Field Survey and Measured Documentation.** Khajana Well Site Documentation, Beed District, Maharashtra. Field notes & measured drawings, 2025, pp. **1–54**.
(Primary source for dimensions, material observations, and field data.)

15. Building architecture of Sthapatyaveda "Dr.V.G.Sthapati.
16. Kamika Agama Shastra "Dr. S.P Sabaratham.
17. Mayamatam "Bruno Degan.
18. Manasaar "P.K.Acharya
19. Kamika Agama Shastra "Dr. S.P Sabaratham.

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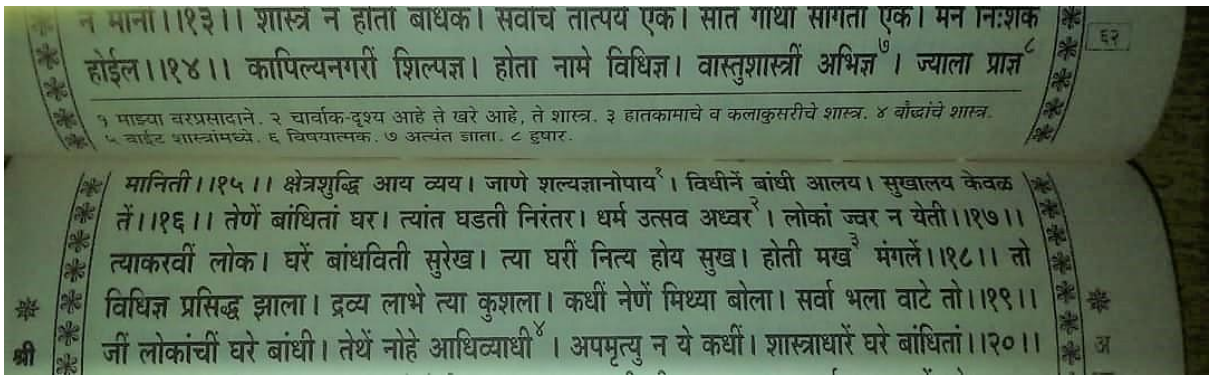
Importance of Aayaadi is written in every Vaastu related Ancient text

Measurement units &Aayaadi Calculations references from



न माना।।१३।। शास्त्र न हाता बाधक। सवाच तात्पय एक। सात गाथा सागता एक। मन निःशक
होईल।।१४।। कापिल्यनगरीं शिल्पज्ञ। होता नामे विधिज्ञ। वास्तुशास्त्रीं अभिज्ञ[७]। ज्याला प्राज्ञ[८]

१ माझ्या वरप्रसादाने. २ चार्वाक-दृश्य आहे ते खरे आहे, ते शास्त्र. ३ हातकामाचे व कलाकुसरीचे शास्त्र. ४ बौद्धांचे शास्त्र.
५ वाईट शास्त्रांमध्ये. ६ विषयात्मक. ७ अत्यंत ज्ञाता. ८ हुषार.

मानिती।।१५।। क्षेत्रशुद्धि आय व्यय। जाणे शल्यज्ञानोपाय[१]। विधीनें बांधी आलय। सुखालय केवळ
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त्याकरवीं लोक। घरें बांधविती सुरेख। त्या घरीं नित्य होय सुख। होती मख[३] मंगलें।।१८।। तो
विधिज्ञ प्रसिद्ध झाला। द्रव्य लाभे त्या कुशला। कधीं नेणें मिथ्या बोला। सर्वा भला वाटे तो।।१९।।
जीं लोकांचीं घरे बांधी। तेथें नोहे आधिव्याधी[४]। अपमृत्यु न ये कधीं। शास्त्राधारें घरे बांधितां।।२०।।